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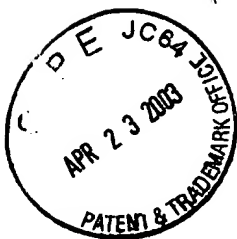
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IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Applicant: **Withers, Meng**

Serial No.: **09/921,588**

Examiner: **H. Shakeri**

Title: **MULTIPOINT POLISHING FLUID DELIVERY SYSTEM**

Case: **5646Y1**

Filed: **August 2, 2001**

Group Art Unit: **3723**

COMMISSIONER FOR PATENTS
Washington, DC 20231

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APR 28 2003
TECHNOLOGY CENTER R3700

DECLARATION UNDER 37 C.F.R. §1.131

We, Bradley Withers and Brenda Meng, hereby declare as follows:

1. We are the Applicants of the above-captioned patent application.
2. The invention which forms the subject matter of the above-captioned patent application was conceived of and reduced to practice on or before March 22, 2001.
3. Exhibit A is enclosed herewith in support of the declaration that we conceived of and reduced to practice the invention in this country on or before March 22, 2001.
4. Exhibit A is a copy of an invention alert that was submitted, on or before March 22, 2001, to the Applied Materials Patent Department as part of an invention disclosure that forms the basis of the present application.
5. Exhibit A includes a rotating polishing material having an upwardly facing polishing surface for polishing a substrate thereon, an arm having a delivery portion disposed at least partially over the polishing surface, a first nozzle disposed on the

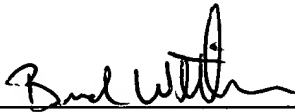
#16
Declaration
E. Faytm
5/13/03

delivery portion and adapted to flow the polishing fluid at a first rate and at least a second nozzle disposed on the delivery portion and adapted to flow the polishing fluid at a second rate that is different than the first rate, wherein the first nozzle dispenses a greater volume of polishing fluid on a first portion of the polishing surface as it interfaces with the substrate than the polishing fluid of equal concentration dispensed on a second portion of the polishing surface by the second nozzle. See, page 3, paragraphs 7 and 8; page 4, figure 1.

6. Exhibit A is offered as supporting evidence that the system of the present invention, as recited in claim 1, was conceived of and reduced to practice on or before March 22, 2001, the filing date of the U.S. patent 6,398,627 issued to Chiou.

The undersigned, Bradley Withers and Brenda Meng, hereby declare that all statements made herein of our own knowledge are true and that these statements made on information and belief are believed to be true and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent resulting therefrom.

3/7/03
Date


Bradley Withers

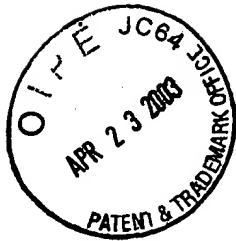
Date

Brenda Meng

CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.8(a)

I hereby certify that this correspondence is being deposited on April 18, 2003 with the United States Postal Service as first-class mail, with sufficient postage, in an envelope addressed to the Commissioner of Patents, Washington, D.C 20231.

Allyson M. DeVesty
Signature
4-18-03
Date of signature



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PATENT AND TRADEMARK OFFICE

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Case: **5646Y1**

Serial No.: **09/921,588**

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COMMISSIONER FOR PATENTS
Washington, DC 20231

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delivery portion and adapted to flow the polishing fluid at a first rate and at least a second nozzle disposed on the delivery portion and adapted to flow the polishing fluid at a second rate that is different than the first rate, wherein the first nozzle dispenses a greater volume of polishing fluid on a first portion of the polishing surface as it interfaces with the substrate than the polishing fluid of equal concentration dispensed on a second portion of the polishing surface by the second nozzle. See, page 3, paragraphs 7 and 8; page 4, figure 1.

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Date

April 8, 2003
Date

Bradley Withers

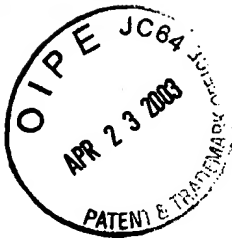
Brenda R. Meng
Brenda Meng

CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.8(a)

I hereby certify that this correspondence is being deposited on April 18, 2003 with the United States Postal Service as first-class mail, with sufficient postage, in an envelope addressed to the Commissioner of Patents, Washington, D.C 20231.

Allyson M. DeVesty
Signature
4-18-03
Date of signature

EXHIBIT A



ALERT NO:

Date:

INVENTION ALERT FORM

TO: Gaile Bailey M/S 2061
Extension 32724

CIRCLE ONLY ONE FROM TOP ROW (REQUIRED FIELD):

EP/	SUBSTRATE	CMP	METAL	CPS	CORE	COPPER	AKT	ATD	APD	FET	HDPCVD	IMPLANT/	WCVD/	ECOM	ETEC
2470	SILICON	0881	0876	ENG	0793	2492	BBT	1301	CDSEM	MDR/DSI	BCVD	IMPLANT/	TICL/TIN		RT
2512	SILICON	0916	SMO/	EPS	2590	2492			WF	3047	0166	SWIFT	2492		
TPCRTP	DIELECTRIC/	0521	SMO/	DT	2492	2492			DRSEM		LOW K	ORION			
0584	RIS	0521	PUMP								2445	2471			
TPGLFVD	DIELECTRIC/	0521	EPIC								ELK				
0584	ICP	0521	2442								2445				
TPGGATE	CONDUCTOR	0521	SCALPEL												
0584	0894														
TPGOOTHER	CHAMBER	0894	CONSILIUM												
0584	TECH	0894	2199												
PMD	CORR TECH	1245													
3002															
STI						COPPER									
CAP															
GATE															
STACK-1498															

cmp/cmp
1399

0005646

COMPUTER ENTERED

Please use separate attachments for any answers that don't fit on the form, especially for questions 3-8. If the answer to a question is "NONE", please write "NONE" rather than leaving the answer blank.

1. Title of Invention (please print clearly):

A method and apparatus for controlling the removal profile during 300mm copper CMP.

2. Inventors-Names only-(please print clearly and provide complete information at Section 9.)

Bradley Withers, Brenda Meng

3. Earliest dates and model names of all Applied products incorporating the invention which have been offered for sale or are expected to be offered for sale:

No current products incorporate the invention. The invention could eventually become applicable to all 300mm copper ReflexionTM systems.

4. If the invention has been demonstrated or described to persons other than Applied employees, for each disclosure please provide the earliest date, name of company, a brief description of what was disclosed and the purpose of the disclosure. Attach a copy of any related non-disclosure agreements:

The invention has not been described to persons outside of Applied Materials.

5. If the disclosure like those in Question #4 are expected to occur within the next 12 months, please provide the anticipated date, type of information to be disclosed, and purpose of the disclosure:

None.

INVENTION ALERT FORM

6. Describe any other known designs or processes, whether actually implemented or merely proposed in a publication, which could be considered similar to your invention or which constitute the state-of-the-art improved upon by your invention: If described in a publication, attach a copy of same or provide a citation.

No research done. No known designs.

7. List each feature of the invention which you consider novel and non-obvious. Describe the advantages of each novel feature in comparison with the state-of-the-art approaches which are most similar to your invention:

Several techniques have been introduced to systematically control the removal rate profile during copper CMP (e.g. Backside pressure contouring via flexible membrane). In this method, a slurry is delivered to the CMP pad in such a way that it discretely affects the material removal characteristics of known localized regions across the diameter of the wafer. The global profile characteristics of the wafer can be predicted by metering controlled amounts of a slurry to various points across the useable region of the CMP pad.

8. Describe the invention, preferably with reference to attached drawings:

The invention consists of a multi-port slurry delivery arm with discrete metering capability for each port (Fig 1). The multi-port slurry delivery arm enables the user to modulate the global non-uniformity across the wafer (Fig. 2 A-E) or affect the removal at a localized region of the wafer (Fig. 3 F,G). Both characteristics are useful for addressing as-deposited plating profiles and varying edge conditions.

Fig. 1

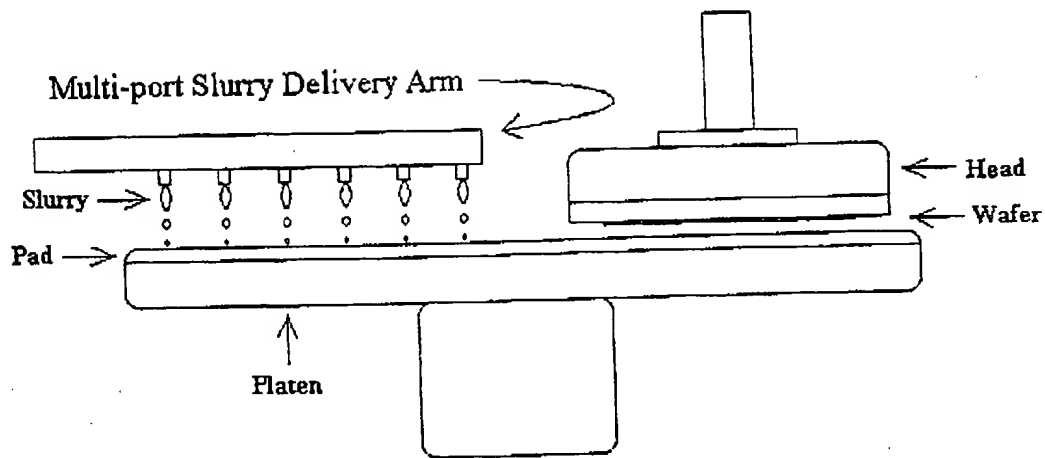


Fig. 2

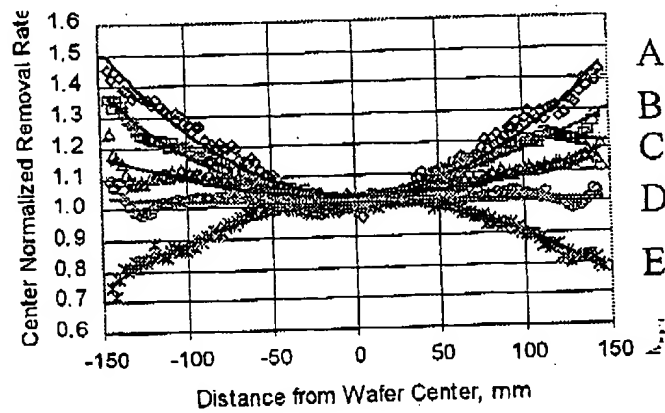
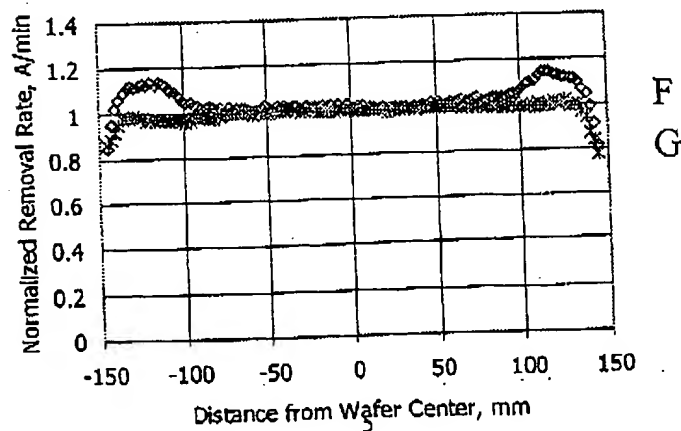


Fig. 3



INVENTION ALERT FORM

9. Provide the following information for EACH inventor** REQUIRED FIELDS:

Inventor #1:
 Legal Name: Bradley S. Withers Employee # 78530 Mail Stop 1512
 Work Phone (408) 986-3555 Fax No.: (408) 563-5430
 Job Title: Process Engineer
 Citizenship: U.S.
 Complete Home Address: 7319 Croy Lane Dublin, CA 94568 1049 Galsom Dr Folsom, CA 95630
 Manager: Ajoy Zutshi Title: Engineering Manager
 Div. Manager Fritz Redeker Title: Sr. Dir. Cu KPU
 Product Group: CMP - Cu KPU Cost Center #: ~~1522~~ 2628

Inventor #2:
 Legal Name: BRENDA R. MENG Employee # 67373 Mail Stop 1512
 Work Phone 408.986.2844 Fax No.: 408.563.5430
 Job Title: PROCESS ENGINEER
 Citizenship: U.S.
 Home Address: 1123 SADDLEWOOD DRIVE SAN JOSE, CA 95121
 Manager: AJOY ZUTSHI Title: ENGINEERING MANAGER
 Div. Manager FRITZ REDEKER Title: SR. DIRECTOR Cu KPU
 Product Group: CMP - Cu KPU Dept #: 2628

Inventor #3:
 Legal Name: _____ Employee # _____ Mail Stop _____
 Work Phone _____ Fax No.: _____
 Job Title: _____
 Citizenship: _____
 Home Address: _____
 Manager _____ Title: _____
 Div. Manager _____ Title: _____
 Product Group: _____ Dept #: _____

21/4

INVENTION ALERT FORM

10. Signature, date and **PRINTED** name of each inventor plus two witnesses who have read and understood this Invention Alert form:

Inventors:

<u>Bradley S. Withers</u>	<u>[REDACTED]</u>	<u>[Signature]</u>
Printed Name	Date	Signature
<u>BRENDA R. MENG</u>	<u>[REDACTED]</u>	<u>[Signature]</u>
Printed Name	Date	Signature

_____	_____	_____
Printed Name	Date	Signature

_____	_____	_____
Printed Name	Date	Signature

_____	_____	_____
Printed Name	Date	Signature

_____	_____	_____
Printed Name	Date	Signature

Witness:

_____	_____	_____
Printed Name	Date	Signature

_____	_____	_____
Printed Name	Date	Signature

Return to:	Gaile Bailey
Mail Stop:	2061
Fax No...:	986-3090
Extension:	563-2724